



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,654	02/14/2002	Stanley S. Toncich	UTL 00161	5491
32968	7590	07/24/2006	EXAMINER	
KYOCERA WIRELESS CORP.			JONES, STEPHEN E	
P.O. BOX 928289			ART UNIT	
SAN DIEGO, CA 92192-8289			PAPER NUMBER	
			2817	

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,654

Applicant(s)

TONCICH, STANLEY S.

Examiner

Stephen E. Jones

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-17 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-17 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-17, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard et al. (US 4,236,125) in view of Nakamichi et al. (EP0909024) and Makino et al. (US 5,945,887) (all of record).

Bernard et al. teaches a circulator including: short circuiting one terminal/port of the device (i.e. forming an isolator) (e.g. see Col. 2, lines 47-50); two other ports (e.g. 41 and 42) are input and output ports; each of the three ports has a tunable matching circuit comprising a portion (e.g. 39) in the signal path and a portion (e.g. 40) connected between the port and ground; inherently the input and output ports are connected to electrical components for the device to be useful; each of the portions of the matching circuits includes a variable capacitor for adjusting the impedance of the respective matching circuit; and the ports of the matching circuits can be designated in an identical manner as the present claims (e.g. port 41 could be considered port 1 of the claim and the input terminal of the isolator on the other end of the matching circuit could be considered port 2).

However, Bernard does not teach that the variable capacitors are ferroelectric tunable capacitors having control signals or that the isolation port circuit

includes a resistive element coupled between the first connection point and ground (Claims 1 and 20-22). Bernard also does not explicitly teach that the input device is a power amplifier (Claims 4 and 8) and that the matching circuits naturally match and function as in the claims 13-17.

The Nakamichi et al. reference discloses in figure 1 a ferroelectric variable capacitor (i.e., voltage tunable) {see [0014, 0015, 0018, 0024]} including a control terminal for control signals. As would have been well known, the ferroelectric voltage tunable capacitor offers the advantage over semiconductor varactors of not being susceptible to overheating and burnout as well as having a larger capacitance range.

Makino provides the general teaching of providing a duplexer (i.e. transmit and receive sharing an antenna as shown in Fig. 2), an isolator, matching, and a power amplifier (e.g. see Figs. 1-7). Also, Makino provides the general teaching that 12.5 ohms is a typical impedance value for such circuits and also teaches matching between 2 ohms at an amplifier and 12.5 ohms at the isolator. Makino further shows that a resistor (R) is used to terminate the connection point of the isolated port to ground.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted ferroelectric tunable capacitors including control signals such as taught by Nakamichi et al. in place of the variable capacitors in the isolator circuit of Bernard, because it would have been a mere substitution of art-recognized

equivalent variable capacitor means for an RF circuit and would have advantageously provided better overheating/burnout protection and a larger capacitance range.

With respect to the limitations of use of the matching circuits as a power amplifier-to-isolator matching circuit in claims 4 and 8, it should be noted that use of an isolator in a communication device with power amplifiers is well known such as taught by Makino and such a modification would have been obvious based on the desired use.

Regarding Claim 16, it would have been considered obvious to one of ordinary skill in the art to have selected the modified circuit to have the input matching impedance to be 2 ohms at the amplifier output and 12.5 ohms at the isolator input such as taught by Makino (e.g. Fig. 2), because it would have been considered a mere optimization of the impedance/matching of the circuit based on the selection of well-known impedance value amplifiers and isolators such as taught by Makino. Furthermore, it would have been considered obvious to one of ordinary skill in the art to have selected the output matching circuit to be about 12.5 ohms at the isolator output and 12.5 ohms at the duplexer input, especially since Bernard is silent as to the impedance values and Makino teaches that 12.5 ohms is a typical value, thus it would have been a mere optimization of the impedance matching based on the selected impedance value of the desired choice of duplexer (Claims 14 and 18).

Also regarding Claims 13, 15, and 17 as an obvious consequence of the combination resulting in the same structure as the presently claimed structure, the device would function equivalently to the presently claimed invention.

Additionally, it would have been considered obvious to one of ordinary skill in the art to have provided a resistor such as taught by Makino to the modified Bernard device, because it would have provided a well-known means for providing the termination required for forming an isolation port and the advantageous benefit of terminating reflected signals (e.g. see Makino Col. 4, lines 20-25).

Response to Arguments

3. Applicant's arguments filed 6/6/06 have been fully considered but they are not persuasive.

Applicant argues that the patents to Bernard, Makino, Nakamichi, and Simmons do not teach isolator circuits as is claimed essentially because none of the references teach all of the claimed invention individually, and the combination in the rejections is based on hindsight.

4. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

5. In response to applicant's argument that the individual references do not teach the claimed invention each by themselves, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Applicant is arguing the references alone rather than the combination. The examiner admits that none of the references alone teaches all of the features of the claims. However, it is the teachings and motivations provided by the prior art references which render the claims as obvious.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

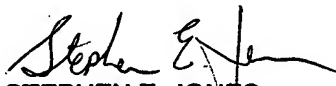
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SEJ


STEPHEN E. JONES
PRIMARY EXAMINER